

Attorney Docket No.: **PTQ-0027**
Inventors: **Van Eyk et al.**
Serial No.: **09/115,589**
Filing Date: **July 15, 1998**
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This listing of the claims will replace all prior versions and listings of claims in the application:

Listing of the claims:

Claims 1-79 (canceled)

1 Claim ~~20~~ (currently amended): A method for assessing skeletal muscle damage in a subject, comprising detecting the presence or absence or measuring the amount of:

- (a) a peptide fragment of a myofilament protein; or
- (b) a covalent or non-covalent complex of at least:

- (i) a peptide fragment of a myofilament protein and an intact myofilament protein; or
 - (ii) two peptide fragments of myofilament proteins,

in a biological sample obtained from a subject being assessed for skeletal muscle damage, said biological sample being selected from the group consisting of skeletal muscle tissue, a component of skeletal muscle tissue, blood, blood serum and urine, by incubating the biological sample with an antibody or a functional fragment of an antibody antigen specific fragment thereof that specifically binds to the peptide fragment of a myofilament protein under conditions which allow the antibody or functional fragment of the antibody antigen specific fragment thereof to form a complex with the

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(a) peptide fragment of a myofilament protein; or
(b) covalent or non-covalent complex of at least:
 (i) a peptide fragment of a myofilament protein
and an intact myofilament protein; or
 (ii) two peptide fragments of myofilament
proteins,
and detecting or measuring the formed complex,
wherein said peptide fragment of the myofilament protein or
said peptide fragment of the covalent or non-covalent
complex formation consists of:
 a skeletal troponin I peptide fragment, or
 a skeletal troponin T peptide fragment,
and wherein the presence or amount of:
 (a) the peptide fragment of the myofilament protein; or
 (b) the covalent or non-covalent complex of at least:
 (i) the peptide fragment of the myofilament
protein and the intact myofilament protein; or
 (ii) two peptide fragments of myofilament
proteins,
in the biological sample is associated with skeletal muscle
damage.

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1 Claim 21 (previously presented): The method of claim
20, wherein the peptide fragment of the myofilament protein
or the covalent or non-covalent complex of at least:

(i) a peptide fragment of a myofilament protein and an intact myofilament protein; or

(ii) two peptide fragments of myofilament proteins consists of a covalent complex.

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Claim 22 (previously presented): The method of claim 20 wherein the presence of at least two different peptide fragments of myofilament proteins or covalent or non-covalent complexes is detected.

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Claim 23 (previously presented): The method of claim 20 wherein the amounts of at least two different peptide fragments of myofilament proteins or covalent or non-covalent complexes are measured and the measured amounts are compared as an indication of the extent of skeletal muscle damage in the subject.

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Claim 24 (previously presented): The method of claim 20 wherein the ratio of at least two different peptide fragments of myofilament proteins or covalent or non-covalent complexes is assessed as an indication of the extent of skeletal muscle damage in the subject.

Claim 85-86 (canceled)

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6 Claim **21** (previously presented): The method of claim
20¹, wherein the complex is detected or measured by assaying
for the presence of a label.

7 Claim **26** (previously presented): The method of claim
20¹, wherein the antibody or functional fragment of the
antibody is labeled with an enzyme which is detected by
measuring enzymatic activity associated therewith.

8 Claim **29** (previously presented): The method of claim
26⁷, wherein the enzyme is selected from the group consisting
of alkaline phosphatase, horseradish peroxidase, luciferase,
beta-galactosidase, lysozyme, glucose-6-phosphate
dehydrogenase, lactate dehydrogenase, and urease.

9 Claim **20** (previously presented): The method of claim
20¹, wherein the antibody or a functional fragment of an
antibody is immobilized on a solid phase.

10 Claim **21** (previously presented): The method of claim
20⁹, wherein the solid phase is a plastic surface.

11 Claim **22** (previously presented): The method of claim **20**¹
wherein the skeletal muscle damage is reversible.

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12 ¹¹ Claim **25** (previously presented): The method of claim **92** wherein the skeletal muscle damage is due to at least one condition selected from the group consisting of hypoxia, hypoxemia, ischemia, fatigue and reperfusion.

13 ¹ Claim **94** (previously presented): The method of claim **90** wherein the skeletal muscle damage is irreversible.

14 ¹³ Claim **26** (previously presented): The method of claim **94** wherein the skeletal muscle damage is due to at least one condition selected from the group consisting of hypoxia, hypoxemia, ischemia, and reperfusion.

Claim 96 (canceled)

15 Claim **97** (currently amended): A method for assessing skeletal muscle damage in a subject, comprising detecting the presence or absence or measuring amounts of at least two different:

- (a) peptide fragments of a myofilament protein
- (b) covalent or non-covalent complexes of at least:
 - (i) a peptide fragment of a myofilament protein and an intact myofilament protein; or
 - (ii) two peptide fragments of a myofilament protein,

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in a biological sample obtained from a subject being assessed for muscle damage, said biological sample being selected from the group consisting of skeletal muscle tissue, a component of skeletal muscle tissue, blood, blood serum and urine, by incubating the biological sample with an antibody or a functional fragment of an antibody antigen specific fragment thereof that specifically binds to the peptide fragment of a myofilament protein, under conditions which allow the antibody or functional fragment of the antibody antigen specific fragment thereof to form a complex with the

(a) peptide fragment of a myofilament protein; or
(b) covalent or non-covalent complex of at least:
 (i) a peptide fragment of a myofilament protein and an intact myofilament protein; or
 (ii) two peptide fragments of myofilament proteins,
and detecting or measuring the formed complex, wherein said peptide fragments of the myofilament protein or said peptide fragments of the covalent or non-covalent complexes consist of:

 skeletal troponin I peptide fragments, or
 skeletal troponin T peptide fragments,
wherein the presence or amount of the:
 (a) peptide fragments of the myofilament protein; or

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(b) covalent or non-covalent complexes of at least:

- (i) the peptide fragment of the myofilament protein and the intact myofilament protein; or
- (ii) two peptide fragments of the myofilament protein,

in the biological sample are associated with muscle damage, and

wherein the

- (a) peptide fragments of the myofilament protein; or
- (b) covalent or non-covalent complexes of at least:

- (i) the peptide fragment of the myofilament protein and the intact myofilament protein; or
- (ii) two peptide fragments of the myofilament protein,

are from the same myofilament protein.

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16 Claim ~~26~~ (previously presented): The method of claim ~~21~~ wherein the ratio of the

- (a) peptide fragments of the myofilament protein; or
- (b) covalent or non-covalent complexes of at least:

- (i) the peptide fragment of the myofilament protein and the intact myofilament protein; or
- (ii) two peptide fragments of the myofilament protein,

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from the same myofilament protein is assessed as an indication of the extent of the muscle damage in the subject.

Claim 99-102 (canceled)

17 Claim ~~103~~ (new): The method of claim ~~80~~ wherein said biological sample is skeletal muscle tissue.

18 Claim ~~104~~ (new): The method of claim ~~80~~ wherein said biological sample is a component of skeletal muscle tissue.

19 Claim ~~105~~ (new): The method of claim ~~80~~ wherein said biological sample is blood.

20 Claim ~~106~~ (new): The method of claim ~~80~~ wherein said biological sample is blood serum.

21 Claim ~~107~~ (new): The method of claim ~~80~~ wherein said biological sample is urine.

22 Claim ~~108~~ (new): The method of claim ~~80~~ wherein said biological sample is skeletal muscle tissue.

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23 Claim ~~109~~ (new): The method of claim ~~97~~ wherein said biological sample is a component of skeletal muscle tissue.

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24 Claim ~~110~~ (new): The method of claim ~~97~~ wherein said biological sample is blood.

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25 Claim ~~111~~ (new): The method of claim ~~97~~ wherein said biological sample is blood serum.

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26 Claim ~~112~~ (new): The method of claim ~~97~~ wherein said biological sample is urine.